

# Hinge Pin Remover Tool

## BACKGROUND OF THE INVENTION

### 1. Technical Field

[01.00] This invention relates generally to hand tools, and more particularly to a hand tool for removing a hinge pin from a door hinge or other hinge.

### 2. Description of Related Art

[02.00] A typical door hinge includes a first hinge section that mounts on a door and a second hinge section that mounts on a vertically disposed framing member at the door opening. The task of mounting a door on the framing member with multiple hinges proceeds by mounting the first and second hinge sections of each hinge on the framing member and the door. Next, the installer positions the door by the door opening and aligns the two hinge sections of each hinge. Then, the installer inserts removable hinge pins in the hinges that function to hold the two sections of the hinges together pivotally. The above applies to various types and kinds of hinges other than just door hinges.

1 [03.00] Removing the door proceeds in reverse order by first  
removing the hinge pins. That is where certain problems can  
arise. Over time, the hinge pin shaft often becomes tightly  
lodged in place, through corrosion or otherwise, making  
5 removal very difficult. Existing methods of dislodging such a  
hinge pin include placing a screwdriver blade under the head  
of the hinge pin and tapping the screwdriver handle with a  
hammer or the heel of the hand. But that does not always  
work very well and it can result in objectionable scratches to  
10 the hinge pin and elsewhere on the hinge. Thus, a need exists  
for a better way to remove such a hinge pin.

## SUMMARY OF THE INVENTION

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[04.00] This invention addresses the concerns outlined above  
by providing a dedicated hinge pin remover tool having a  
forked tip that fits under the hinge pin head. The user wedges  
the forked tip between the hinge pin head and the rest of the  
20 hinge and then dislodges the hinge pin with a prying action of  
the forked tip against the hinge pin head.

[05.00] To paraphrase some of the more precise language  
appearing in the claims and further introduce the nomenclature  
25 used, the invention provides a tool for removing a hinge pin

1 from a hinge when the hinge pin includes a hinge pin shaft with  
a predetermined hinge pin shaft diameter (e.g., 9/32 of an inch)  
and a hinge pin head with a predetermined hinge pin head  
diameter (e.g., 1/2 of an inch) that is larger than the hinge  
5 pin shaft diameter. The tool includes an elongated  
member (e.g., a shaft) having a proximal end portion and a  
distal end portion, a handle on the proximal end portion of the  
elongated member for a user to grasp in a hand of the  
user, and a forked tip (i.e., bifurcated) on the distal end portion  
10 of the elongated member for the user to wedge between the  
hinge pin head and the hinge for purposes of facilitating hinge  
removal.

[06.00] The forked tip includes spaced apart first and second  
15 hinge-pin-dislodging tongs. The tongs define a channel having  
a width between the first and second tongs that is larger than  
the hinge pin shaft diameter and smaller than the hinge pin  
head diameter. That enables the channel to receive the hinge  
pin shaft as the user wedges the first and second  
20 hinge-pin-dislodging tongs between the hinge pin head and the  
hinge.

[07.00] In one preferred embodiment, the first and second  
hinge-pin-dislodging tongs are beveled inwardly toward each  
25 other to better enable the user to wedge the first and second

1 tongs between the hinge pin head and the rest of the hinge. In  
addition, the elongated member is composed of metal, the  
channel has a uniform cross section, and the channel has a  
width slightly greater than 9/32 of an inch wide in order to  
5 accommodate a 9/32-inch diameter hinge pin shaft.

[08.00] Thus, the invention provides a dedicated hinge pin  
remover tool that facilitates the removal of a hinge pin. The  
following illustrative drawings and detailed description make  
10 the foregoing and other objects, features, and advantages of  
the invention more apparent.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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[09.00] FIG. 1 of the drawings is an isometric view showing  
the top, front, and right side of a hinge pin remover tool  
constructed according to the invention;

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[10.00] FIG. 2 is a top plan view of the hinge pin remover tool;

[11.00] FIG. 3 is a side elevation view of the right side of  
the tool;

1 [12.00] FIG. 4 is a perspective view showing the tool in use  
to remove the hinge pin of a door hinge;

[13.00] FIG. 5 is an enlarged isometric view of a tip portion  
5 of the tool;

[14.00] FIG. 6a is a cross-sectional elevation view of the  
tip portion as viewed in a plane containing a line 6-6 in FIG. 5;

10 [15.00] FIG. 6b is a diagrammatic representation of the  
uniform trapezoidal cross section of the channel shown in  
FIG. 6a between the first and second hinge-pin-dislodging  
tongs;

15 [16.00] FIG. 7 is a cross-sectional elevation view of the tip  
portion as viewed in a plane containing a line 7-7 in  
FIG. 5; and

[17.00] FIG. 8 is a top plan view similar to FIG. 2 of a portion  
20 of a second embodiment of a hinge pin remover tool  
constructed according to the invention that has a differently  
beveled tip portion that defines a distally enlarged channel.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

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[18.00] FIGS. 1-7 of the drawings show various aspects of a  
5 hinge pin remover tool **10** constructed according to the  
invention. It facilitates removal of a hinge pin **11** from a  
hinge **12** having first and second hinge sections **13** and **14** as  
shown in FIG. 4. The hinge pin **11** (typically made of steel)  
includes a hinge pin shaft **15** with a predetermined hinge pin  
10 shaft diameter (e.g., 9/32 of an inch) and a hinge pin head **16**  
with a predetermined hinge pin head diameter (e.g., 1/2 of an  
inch) that is larger than the hinge pin shaft diameter.

[19.00] Generally, the tool **10** includes an elongated member in  
15 the form of a blade **17** having a proximal end portion **18** and a  
distal end portion **19** identified in FIGS. 1-3. The blade **17**  
may be composed of quarter-inch thick steel, for example,  
similar to the blade of a typical screwdriver or chisel. The  
tool **10** also includes a handle **14** (FIGS. 1-4) that is attached  
20 to the proximal end portion **18** of the blade **17** for a user to  
grasp in a hand **20** of the user (FIG. 4). In addition, the tool **10**  
includes a forked tip **21** on the distal end portion **19** of the  
blade **17** for the user to wedge between the hinge pin head **16**

1 and the rest of the hinge **12** for purposes of facilitating hinge  
pin removal.

[20.00] For the tool **10**, the handle **14** and the blade **17**,  
5 including the forked tip **21** of the blade **17**, extend along a  
central axis of elongation **22** (FIG. 1) for a total length of the  
tool **10** that measures about seven inches. Of course, that  
dimension may vary significantly without departing from the  
inventive concepts described.

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[21.00] The forked tip **21** includes an upper side **23** and an  
under side **24** that are identified in FIG. 3. It is referred to as  
a "forked tip" because it resembles a fork in that it is  
divided into two or more branches or prongs (i.e., bifurcated).  
15 Thus, the forked tip **21** includes spaced apart first and  
second hinge-pin-dislodging prongs **25** and **26** that define a  
hinge-pin-shaft-receiving channel **27** extending along the  
central axis of elongation **22**. The first and second prongs **25**  
and **26** are referred to as "hinge-pin-dislodging prongs"  
20 because they function to dislodge the hinge pin **11** from the rest  
of a hinge **12**. Unlike the prongs of a common dinner fork and  
the like, the first and second prongs **25** and **26** are sufficiently  
large in cross sectional size so that they are rigid enough to  
not spread significantly when forced under the hinge pin

1 head **16** (i.e., the width of the channel **27** does not increase appreciably in use).

[22.00] The channel **27** that the first and second prongs **25**  
5 and **26** form has a uniform width between the first and second prongs **25** and **26** at the under side **24** that measures about 5/8 of an inch so that it is slightly greater than the predetermined hinge pin shaft diameter of the hinge pin shaft **15**. The width of the channel **27** is indicated in FIG. 2 at  
10 reference numeral **28** between two opposing arrowheads in that view. With the width of the channel **27** slightly greater than the diameter of the hinge pin shaft **15**, the channel **27** can receive the hinge pin shaft **15** as the forked tip **21** is wedged between the hinge pin head **16** and the rest of the hinge **11** as shown  
15 in FIG. 4. Based upon the foregoing and subsequent descriptions, one of ordinary skill in the art can readily implement the invention, including providing a different channel width in order to accommodate a hinge pin shaft having a different diameter than the 9/16 of an inch diameter of the  
20 hinge pin shaft **15**. Different channel widths are intended to fall within the scope of the claims.

[23.00] In order to facilitate use of the tool **10**, the first and second prongs are preferably beveled. The first and second



1     prongs **25** and **26** include first and second beveled surfaces **29**  
and **30** (FIGS. **5** and **6a**) that extend to first and second  
edges **31** and **32** at the under side **24** so that the width of the  
channel **27** at the upper side **23** is greater than the width of the  
5     channel **27** at the under side **24**. Fig. **6b** is a diagrammatic  
representation **33** of the trapezoidal cross section of the  
channel **27** that results.

[24.00] The trapezoidal cross section facilitates use of the  
10     tool **10** because the first and second beveled surfaces **29**  
and **30** wedge more easily between the hinge pin head **16** and  
the rest of the hinge **12** as the user advances the edges **31**  
and **32** under the hinge pin head **16**. The illustrated forked  
tip **21** is also further beveled to result in a third beveled  
15     surface **34** that extends to a third edge **35** at the under  
side **24** (FIGS. **6a** and **7**). As the user continues to advance  
the forked tip **21** beneath the hinge pin head **16**, the third  
beveled surface **34** eventually wedges between the hinge pin  
head **16** and the rest of the hinge **12** as the edge **35** moves  
20     beneath the hinge pin head **16**.

[25.00] Turning now to FIG. **8**, it shows a second embodiment  
of a hinge pin remover tool constructed according to the  
invention that is identified as a tool **100**. The tool **100** is

1 similar in many respects to the tool **10** and so only differences  
are described in further detail. For convenience, reference  
numerals designating parts of the tool **100** are increased by  
one hundred over the reference numerals designating similar,  
5 related, or corresponding parts of the tool **10**.

[26.00] Similar to the tool **10**, the tool **100** includes a blade **117**  
having a distal end portion **119** and a forked tip **121** on the  
distal end portion **119**. The forked tip **121** includes first and  
10 second hinge-pin-dislodging prongs **125** and **126** that define a  
hinge-pin-shaft-receiving channel **127** bounded by first, second,  
and third beveled surfaces **129**, **130**, and **134** that extend to  
first, second, and third edges **131**, **132**, and **135**.

15 [27.00] The major difference embodied in the tool **100** is that  
the channel **127** has a width between the first and second  
edges **131** and **132** that increases distally. In other words, the  
width of the channel **127** is larger along the channel **127** further  
away from the third edge **135** (i.e., between the fourth and fifth  
20 edges **142** and **143**) than the width is closer to the third  
edge **135** (i.e., between the first and second edges **131**  
and **132**). That configuration results from fourth and fifth  
beveled edges **140** and **141** that extend to fourth and fifth  
edges **142** and **143**. As the user advances the forked tip **121**

1     toward the hinge pin **12**, the fourth and fifth edges **142** and **143**  
advance beneath the hinge pin head **16** and thereby enable the  
fourth and fifth beveled surfaces **140** and **141** to wedge  
between the hinge pin head **16** and the rest of the hinge **12**.

5     [28.00] Thus, the invention provides a dedicated hinge pin  
remover tool having a forked tip that facilitates hinge pin  
removal. The user wedges the forked tip between the hinge pin  
head and the rest of the hinge and then dislodges the hinge pin  
10    with a prying action of the forked tip against the hinge pin  
head. Although exemplary embodiments have been shown and  
described, one of ordinary skill in the art may make many  
changes, modifications, and substitutions without necessarily  
departing from the spirit and scope of the invention.

15    [29.00] What is claimed is: